



10 Health and Safety Information

Focus Questions:

- When do Observers fill out a vessel safety checklist?
- When should Observers wear a PFD?
- What are the procedure for a proper MAYDAY?
- How to care for and don an immersion suit?
- What are the procedures to follow in an abandon ship situation?
- What are the seven steps to survival?

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I. Introduction

Commercial fishing is a dangerous occupation. Slippery decks, heavy gear, and an inhospitable environment are inherent dangers on fishing vessels. The safety and survival information presented in this manual and in the Observer safety training is only an introduction to these topics. There are many pamphlets, books, and videos that provide more detailed information about sea safety and survival. A good book to read about vessel safety is the University of Alaska's Marine Advisory Bulletin "Beating the Odds on the North Pacific", which will be provided during Observer training. You are encouraged to use the experience of your fellow observers and staff as a resource for safety issues. Use the knowledge and experience of the vessel's captain and crew for guidance on safety on board their vessel. No matter how cautious the crew is it is **the observers' responsibility** to keep themselves safe and know how to react in all emergency situations.

II. General Health and Safety

Personal Health and Safety Aboard Vessels

Fishing vessels have many potentially dangerous areas. Be aware of the surroundings at all times and keep eyes and ears tuned to what is going on. The hours, the environment, the food, and the work may be quite different from what your body is accustomed to. Two critically important factors in maintaining health in this new environment are drinking plenty of water and eating enough food.

First Aid and CPR

All WCGOP observers are required to have current first-aid and CPR certificates. Review first-aid and CPR procedures regularly and always bring your first-aid kit with you at sea. You may be the most knowledgeable person in first-aid and CPR on the vessel.

General Safety Precautions on Board

- Apparel with loose strings or tabs and jewelry such as rings should be avoided as these might become caught in the equipment or moving belts. Long hair should be tied back.
- Don't run aboard ships, particularly up stairwells. Always hold handrails in stairwells and on ladders. Try and always keep a hand free to hang on to the vessel. Slipping, tripping, and falling are the most common causes of injury.
- When climbing, you should not be encumbered with heavy backpacks or baggage. Balance is important and both hands must be free while boarding or leaving a vessel. Use a daypack and wear comfortable footwear such as Xtra-Tuffs or athletic shoes that give sure footing. Time your actions with the movement of the boat; i.e. start the climb up a ladder from the top of the up-and-down cycle to avoid being pinched against the ladder by a moving boat. All baggage should be secured with lines and transferred via rope lines or cargo nets. Observer baskets and luggage have been lost overboard because they were thrown without lines attached.
- Fatigue and sleep deprivation suffered by the crew and by the Observer are threats to everyone's safety. Be aware of the physical state of other people on the vessel—whether the person on watch or in control of the gear. Fatigued individuals make mistakes. Monotonous work, such as longline tally samples, is difficult to do accurately and safely when tired. Follow the example of the crew and “catch up” on sleep when there are breaks in fishing.

- Bring things from home that comfort you and can occupy your time during slow periods. Books, magazines, games, favorite articles of clothing, pleasant smells, are examples of things you could bring along. These will help you mentally deal with the sometimes psychologically straining effect of life at sea on a fishing vessel.
- Vegetarians (due to meat-and-potatoes menus) and diabetics (due to odd eating schedules) need to be especially concerned about getting a proper diet. Dietary supplements, vitamins, and extra medications should be considered and brought along by the observer if needed.
- There is no place for drugs or alcohol aboard fishing vessels. Stay sober at all times.
- Review safety procedures with the captain and crew; be sure you all know your responsibilities in emergencies.
- Keep in mind where you are in the vessel in relation to your exit/escape routes. Visualize how you would evacuate and retrieve your safety gear from wherever you may be on the vessel. Visualize your evacuation routes with the vessel in different orientations i.e. on its side, upside down.
- When you are not feeling well, use extra caution and reduce the time spent working.
- Inform the captain and the program of any injuries or illnesses that occur at sea.
- Wash hands frequently with hot soapy water and/or sanitizer to avoid illness and infections.
- Treat all cuts, burns and other wounds seriously and apply appropriate first aid to avoid infections.

- Be aware of confined spaces, such as sleeping quarters that contain chemicals. Fumes can build up in confined spaces and make people ill or even kill them.

Working on Decks

- Always wear a life vest or other flotation and boots when on deck.
- Wear appropriate gear when on deck sampling, rain gear, coat, gloves, hat etc. Try and stay as warm and dry as possible.
- Do not stay outside on the deck during rough seas. One Observer was swept forward over a trawler's winches by waves sweeping up the stern ramp. When outside, remain in full view of a second party at all times.
- Watch out for slick spots where the deck is wet and oily or frozen, step carefully over the half-foot combing rising from the bottom of metal latch doors and passageways, and look out for low overheads in vessel stairwells and watertight doors.
- Beware of trawl cables under strain, they have given way and have maimed and killed fishermen. Whenever a cable is subjected to tension, stand out of the way of backlash. Ask the skipper where they want you to stand when hauling or setting gear.
- Explain to the crew that codend and/or bin/trawl alley measurements will need to be done once the winches have stopped. Ask for advice on a safe place to stand. When nets are being hoisted off the deck, stand clear. Heavy nets have fallen near Observers when the suspending cables parted.

- Watch for moving pots and face the direction of the pot launcher while working. Stay away from the buoy line when the crew is launching pots. Crewmen have been caught in a loop, or the “bite,” of the line and pulled overboard.
- Talk with the crew on safe places to sample when on deck. Ask where previous observers have sampled. Don’t be afraid to voice concerns on sampling stations, or to ask for help in making a sampling station safer.
- Lift correctly! When lifting, get as close as possible to the object, keep the back straight while using your legs. On a moving vessel, this is critical because unexpected movements can cause back strain. Don’t be afraid to ask for assistance when moving large heavy items.
- Wear eye protection on longliners whenever near the moving hooks.
- Use a gaff to collect fish to protect your hands and keep your body further away from the line.
- If the vessel you are on is boarded by the Coast Guard follow all of their instructions. They may ask you some questions, respond honestly, and if you are experiencing harassment they will be able to remove you from the vessel if necessary.

Seasickness

One of the least pleasant aspects of going to sea is the possibility of seasickness. An individual’s susceptibility to seasickness is highly variable. Observers that have experienced motion sickness in cars, planes, or amusement park rides, may experience seasickness during the cruise. Most people feel some level of discomfort when they first go

to sea. Seasickness is a result of a conflict in the inner ear (where the human balance mechanism resides) caused by the erratic motion of the ship through the water. Inside the cabin of a rocking boat, for example, the inner ear detects changes in linear and angular acceleration as the body bobs with the boat. But since the cabin moves with the passenger, the eyes register a relatively stable scene. Agitated by this perceptual incongruity, the brain responds with stress-related hormones that can lead to nausea and vomiting. Its effect can be magnified by strong smells (like diesel fumes or fish, which are part of daily life at sea). Seasickness usually occurs in the first 12-24 hours after sailing. For most people, seasickness dissipates when the body becomes acclimated to the ship's motion (getting one's "sea-legs"). In rare cases, an individual may stay ill beyond the first couple of days at sea, regardless of sea state. If this occurs, dehydration may become life threatening if it leads to shock.

Take seasickness medication before going to sea. There are several over-the-counter or prescription medications available to minimize seasickness.

- Dramamine (generic name is dimenhydrinate) is an effective antihistamine and is available over-the-counter. It can cause drowsiness.
- Bonine (generic name is meclizine) is an effective antihistamine and is available over-the-counter. It can cause drowsiness.
- Coast Guard Cocktail is a two part prescription-only drug that contains promethazine. It is a seasick-preventing antihistamine coupled with ephedrine, which prevents drowsiness.
- Transderm Scop is another prescription-only motion sickness drug. It is a dime-sized adhesive patch that is worn behind the ear and delivers a continuous dose of scopolamine. Each patch lasts for 72 hours. The main side effects of the patch are dry mouth and occasionally blurry vision, but there is less drowsiness.

- Acupressure wristbands and eating crystallized ginger are other remedies used with varying success.

Seasick medications must be taken before the symptoms begin. Most medications take several hours to be absorbed into the body. If you are vomiting and cannot keep anything in your stomach taking medication at sea will not be an option. Even if you doubt that you will get seasick, you might want to take the medication before you board as a precaution against rough weather. If you should get seasick, take comfort in the fact that recovery is only a matter of time. All that is usually required for a complete recovery is some patience. Here are a few tips and considerations regarding seasickness:

- Continue eating items like crackers, dry toast, dry cereal, etc. (avoid anything greasy, sweet, or hard to digest). Keeping something in your stomach suppresses nausea, or, when vomiting, eliminates painful “dry heaves”.
- Keep drinking fluids. Seasickness and related medications cause dehydration and headaches. Try to drink juices low in acidity, clear soups, or water, and stay away from milk or coffee.
- Focus on the horizon to eliminate the visual conflict in your brain.
- The vessel’s motion is generally less pronounced the further astern you go. Try to stay as far back from the bow as possible.
- Keep working. Most people find that being busy on deck keeps their minds off their temporary discomfort. Also, the fresh air out on deck is often enough to speed recovery.
- Carry a plastic bag. This simple trick allows some peace of mind and eliminates some of the panic of getting sick. When vomiting over the

side, be aware of which way the wind and waves are coming.

- Going to the leeward side will ensure that an unpleasant experience doesn't become any more unpleasant.
- Above all, don't be embarrassed or discouraged. When Observers are seasick, chances are that others people on board are seasick too! No one is immune to seasickness.

Fish and Mammal Poisoning

Bacteria from fish may lead to infection in cuts, scrapes, or punctures. To prevent "fish poisoning", wash your hands thoroughly after sampling in a solution of hot, soapy water. Change gloves often to keep them dry and discard any torn gloves. Treat ***all*** minor cuts, especially those on your hands, with antiseptic such as Betadine to avoid infection from fish slime.

Be cautious whenever wading through fish on deck. Fish spines, especially on rockfish, can penetrate rubber boots and cause painful wounds to the feet. Spines often carry bacteria and can lead to fish poisoning.

If a wound gets red or swollen, soak it for ½ hour in very hot, soapy water at least three times a day. Dry and bandage the wound. Antibiotics are commonly prescribed for fish poisoning. The vessel will probably have some on board should they be needed. Never leave an infection untreated--the threat to your health can become much more far-reaching than simply a pair of inoperative hands.

Take extra precautions against infection when collecting specimens from marine mammals. Mammals have similar biological systems to people and the organisms that infect them, can infect people to. "Seal finger" is a fungal

infection of the hands that can easily be contracted by a scratch or bite from a marine mammal.

Harassment



Providing a safe and hostility-free work environment is the responsibility of the contractor (as the employer) and the vessel's personnel (by regulation). It is of utmost importance to the Groundfish Observer Program. However, verbal, physical, or sexual harassment of Observers can occur at sea. While the crew of a fishing vessel may have established a working rapport among themselves, Observers who come on board for a one trip limit period are not part of that system and in fact, may be considered unwelcome government agents or even “fish cops.” Observers, therefore, can be subject to negative attention, comment, or actions.

Harassment of Observers by vessel personnel is strictly prohibited in 50 CFR 679.7 9(g). “It is illegal to (1) Forcibly assault, resist, oppose, impede, intimidate, or interfere with an Observer.”

Identifying Harassment

Harassment can take many forms such as:

- Repeatedly waking an Observer during sleep periods.
- Providing substandard accommodations and food.
- Criticizing an Observer's sampling techniques or reporting practices.

In all cases, harassment is defined as when the Observer feels threatened or feels that their work or living environment is being compromised. You may feel embarrassed, or worry that you did something to provoke the unwanted behavior, but

you have a right to perform your job in an environment free from this type of interference.

Sexual Harassment

Sexual harassment is unwelcome behavior of a sexual nature. Privacy is greatly reduced onboard a vessel, and interactions can become intense very quickly. Sexual harassment may include sexist remarks or behavior, or sexual advances which result in a tense and unproductive work environment. Examples of sexual harassment might include: suggestive sounds or gestures, sexual remarks about clothing, body or sexual orientation, leering or ogling, persistent sexual comments and jokes, or constant brushing against or touching a person's body. Sexual harassment is unwanted attention in a nonreciprocal relationship (relationships with vessel and plant personnel are prohibited under Observer standards of conduct). In most normal interpersonal relationships, an individual can exercise free choice in deciding to develop a relationship based on mutual caring and respect. These elements are absent in sexual harassment. Sexual assaults have occurred on fishing vessels at sea. If you feel harassed, report it before the problem escalates.

What to Do if Observers Experience Harassment

If you experience harassment in any form, confront it directly and document it completely. By reporting harassment, it protects future Observers as well as yourself. Please report any cases of harassment to the Observer Program or NOAA Fisheries Enforcement as soon as possible. The agency is unable to help with problems if they are unaware of them.

Follow these steps:

1. Say no. Tell the harasser that his/her comments, actions or advances are unwanted and that they should stop. Remember that you

are the judge of whether another person's actions negatively affect you.

2. Don't fight fire with fire. Observers should behave professionally at all times. Make sure that verbal and non-verbal body language exhibit a clear message to the harasser to stop.
3. Document all harassment incidents from the very beginning in the logbook. Even if you are unsure at first if you are experiencing harassment, record the details. They may provide you with the full story if the situation escalates. In the logbook, describe the situation, including who, what, where and when. Detail the attempts made to end the harassment and the response that was received.
4. If you feel the initial harassment is egregious or if the problem continues after clearly stating to the harasser to stop, report it to the skipper. Tell the skipper the full story, explain that it is affecting your work, and request that he take steps to end the problem. Most skippers do not want trouble on the boat. If the skipper is informed that trouble is brewing, he should take appropriate action. Document any further incidents and the skipper's actions.
5. If the harassment is not taken care of by the skipper, or if there is a problem with the skipper, report the offense to a coordinator and your contractor at the first opportunity. If there is no resolution, the coordinator will make arrangements for you to leave the vessel.

Illness and Accidents

Observers must contact a coordinator and AOI any time an injury occurs or any time illness or injury prevents sampling!

If you become ill on board, such as coming down with a severe cold or flu or seasickness that inhibits work, you must inform your coordinator of the situation. If the illness gets worse or continues to affect your work for more than three days, your assignment may need to be changed. If you are hurt on board, let the skipper know and contact AOI and your coordinator. If the accident is serious, the captain will contact the USCG who will respond as necessary.

III. Equipment

Immersion Suit



An immersion suit is required for everyone aboard a vessel that operates in cold water. You will be issued an immersion suit with your gear. It is your responsibility to check and maintain your suit. If it gets wet, air-dry it out of direct sunlight. If you notice any rips, tears, punctures, or other damage, notify your coordinator. Check your immersion suit monthly. Store your immersion suit in an easily accessible location out of harms way.

The procedure for donning an immersion suit is as follows:

1. Sit on deck and work your legs into the suit. It may be necessary to remove your boots. Placing plastic bags over the boots or feet may help your legs slide easier. If you can leave your boots on, you may need them later.
2. Once your legs are all the way in, get up on your knees. Place your weak arm in first, and then

pull the hood over your head with your strong arm. If you have long hair, make sure that it is safely tucked in the hood.

3. Holding the zipper below the slide with one hand, lean back to straighten the zipper and pull the lanyard with the other hand. Secure the face flap. **Do not** inflate the air bladder until in the water.
4. Jumping in the water is the last resort. Ease yourself into the water if possible. If jumping is necessary, face the bow or stern and place your vessel side arm over the side and top of your head for protection and with the other hand cover your mouth and nose and get a couple fingers inside the hood to allow air to escape from the suit upon entering the water. Step off the vessel, don't jump, and keep your feet together to protect from floating debris.



Personal Flotation Devices (PFD)

You will be issued either self inflating suspenders or a type III work vest as your PFD. Make sure that the PFD you are issued fits properly. It is a program policy to wear your PFD at all times while on deck. Check you PFD monthly for damage and to insure that the auto inflation mechanism is set correctly. Never wear a PFD inside a vessel. It may impede your ability to escape if the vessel sinks.

Liferafts

Most vessels operating outside of three miles are required to have a liferaft. Liferafts are required by law to be mounted in a float free arrangement or have a hydrostatic release designed to automatically deploy the raft. It is better to manually launch and inflate the raft if there is time in the event of an emergency. Life rafts need to be

serviced annually (except a brand new life raft is good for two years from the manufacturing date). All liferafts need to have the repack /expiration date displayed on the canister. Never go on a vessel that is required to have a liferaft if it needs to be repacked, is not mounted correctly or has an expired hydrostatic release. Know where the liferafts are stored, how to remove them from the cradle, where to launch them, and how to inflate them.



Launching a liferaft

1. Break weak link
2. Secure painter
3. Release hydraulic release
 - Release pelican hook on newer type releases
 - Hit button on older style bronze releases
4. Carry, do not roll, canister to lee side (windward if vessel is on fire)
 - Near bow or stern
 - Away from obstructions
5. Make sure water is clear of people and debris
6. Toss canister into water with painter Secured
7. Pull painter all the way out
 - Up to 250'
8. Give painter a hard tug
9. Canister should split apart and raft should inflate
 - Hissing sound is ok, over-inflation valves are working
10. May inflate upside down



Boarding liferafts

1. If possible, enter liferaft dry
2. Don't jump on canopy
3. Beware of sharp objects
4. Boarding from water
 - Without SOLAS entry ramp:
 - Use buoyancy of immersion suit/PFD to spring up into the door way.
 - Legs together – “seal kick”
 - Grab top tube, then straps inside to pull self in
 - People inside should help others aboard by grabbing below their arms and sitting back
 - With SOLAS entry ramp
 - Board ramp
 - Enter liferaft



Righting liferaft

1. Find side with CO₂ cylinder
2. Position raft to use wind and waves to your advantage
3. Grab righting strap in open hand
4. Stand on cylinder and lean back
5. Land in water on back
6. If raft lands on you, create air pocket by raising hand, pushing the raft floor up
7. Use righting strap to find perimeter of raft

SOLAS Kits

Many life rafts will contain a SOLAS (Saving Of Life At Sea) kit. These kits are packed inside the life raft and contain things such as food, water, 1st Aid kits, flares, etc. The life raft will be labeled with the type of SOLAS Kit included. This should be noted on your Safety Checklist.

Standard equipment

Insulated canopy	Painter
CO ₂ cylinder	Sea Anchor
Towing bridles	Righting strap
Lifelines	Heaving lines
Paddles	Automatic locator light
Automatic interior light	Inflating and bilge pump
Leak stoppers	Repair kit
Knife	Survival manual
Pressure relief valves	Rainwater catchments
Rainwater storage bags	Water stabilizing pockets

SOLAS B (limited Service Pack)

All of the above	Flashlight
2 flashlight bulbs	Spare flashlight batteries
Sponge	Bailer
Jackknife	Parachute distress flare
Hand-held flares	Smoke flare (optional)

SOLAS A (Ocean Service Pack)

All of the above	Graduated drinking vessel
Signal mirror	First Aid kit
1.5 quarts water/person	1lb.rations/person
Additional bailer	Additional sponge
Additional parachute flares	4-6 handheld flares
Signal whistle	Anti Seasickness pills
Fishing kit (optional)	

Throw Ring

All the commercial fishing vessels you will observe on are required to have at least one ring buoy or “Lifesling”, unless they are less than 26’ in length. These smaller vessels may substitute a type IV throwable cushion. These devices are used to mark and or assist in the recovery of a man over board. Make sure you know where there are stowed.

Survival Kits

Personal Survival Kits

A personal survival kit can take up very little space in an immersion suit yet greatly enhance the ability to survive. Think of the seven steps to survival and choose items that may help in an emergency situation on board a vessel. Items such as a knife, dental floss (a strong multi-purpose line), plastic garbage bags, matches, signal mirrors, a compass, hard candy, or bouillon cubes are small items that fit in a zip-lock bag and could save your life.

Abandon Ship Kit/Go Kit

Many vessels will have an abandon ship kit. These kits may contain extra flares, food, water, first Aid materials, radios, etc. Always find out where these are stored in case you need to retrieve it in an emergency.

First Aid Kit

Vessels will have some type of First Aid kit onboard. Their kit may not contain much at all. The program will issue you a basic First aid kit. You should add any personal medication that you may need. It is your responsibility to keep everything current in the kit. If you use anything makes sure to replace it prior to the next trip.

Communication Equipment



Most vessels will have at least one VHF (Very High Frequency) radio with ranges up to 25 miles. Many will have SSB (Single Side Band) radios with reliable ranges of 50-150 miles. Some may have CB's (Citizen Band) with reliable ranges up to 5 miles. Every time you board a vessel, learn where the radios are, which ones work, and how to use them.

In some areas your personal cell phone will work at sea. This can be an important resource for sampling questions and especially during an emergency. Your phone may be the only piece of communication equipment not burning in the wheel house! Some service providers have a speed dial to the Coast Guard. You should check with your provider about this feature.

In addition to radios, many boats will have cell phones that are more powerful than your personal cell phone. Some will have Satellite phones. You should ask about where these are located and how to use them in case of an emergency. You can always use these to call for help; however the radios should be your first choice.

Emergency Channels – many radios will have a red button that will automatically go to the emergency frequency.

VHF- Channel 16

SSB – 2182MHz and 4125MHz

CB – Channel 9

Navigation Equipment

Most of the fishermen will be using GPS (Global Positioning Service) to get their latitude and longitude. Some still rely on Loran positions, but most will get these from a GPS. Ask the captain how to switch from Loran to GPS. If the GPS is hooked up to a plotter, be sure you know which position is the vessel and which is the cursor.

EPIRBS

All vessels operating outside of three miles will have at least one 406 MHz EPIRB mounted in a float-free bracket that will be automatically deployed and activated in the event of sinking. The signal is received by satellite, and in new



styles, will identify the registered owner. It is important to know where the EPIRB is mounted and how to activate it manually. In the event of an abandon ship emergency it is an item you want to take with you. Someone will be assigned that duty on the station bill. Be sure to locate the EPIRB(s) on the vessel and read the directions on how to activate them.

In addition Observers are issued a personal 406 MHz EPIRB that needs to be manually deployed, and will automatically activate when placed in water. You should store your personal EPIRB with your immersion suit and take precautions to keep it dry. There have been several cases where the Coast Guard has received signals from observers EPIRBs that have accidentally gotten wet. If your EPIRB gets wet, wipe it off immediately. If it starts to transmit, call your coordinator and the Coast Guard.

Using EPIRBs

- In an Emergency, turn it on and leave it on
- Protect it from loss
- Keep it with you when you leave the vessel
- Keep antennae vertical, out of the water
- Do not allow antennae to touch any solid object; this prevents grounding

EPIRB Maintenance

OBSERVER SAFETY EQUIPMENT CHECKLIST			
<p>You should maintain any program issued safety equipment on a monthly basis to ensure that they are working properly. If any item does not pass the examination, notify your coordinator immediately so that it may be replaced.</p>			
	Date of Inspection:	Date of Inspection:	
	_____	_____	
EPIRB:	CHECK	CHECK	Comments
Check for physical damage (Cracking, corrosion, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Test EPIRB	<input type="checkbox"/>	<input type="checkbox"/>	
Battery date	<input type="checkbox"/>	<input type="checkbox"/>	
Registration date	<input type="checkbox"/>	<input type="checkbox"/>	
Check antennae condition (cracks, washer at base)	<input type="checkbox"/>	<input type="checkbox"/>	
Immersion Suit:			
Check for rips/ tears/ holes	<input type="checkbox"/>	<input type="checkbox"/>	
Check seams	<input type="checkbox"/>	<input type="checkbox"/>	
Check for grease/ oil stains/ mildew	<input type="checkbox"/>	<input type="checkbox"/>	
Inspect zipper seams	<input type="checkbox"/>	<input type="checkbox"/>	
Wax zipper if necessary	<input type="checkbox"/>	<input type="checkbox"/>	
Strobe attached securely?	<input type="checkbox"/>	<input type="checkbox"/>	
Test strobe	<input type="checkbox"/>	<input type="checkbox"/>	
Whistle attached securely?	<input type="checkbox"/>	<input type="checkbox"/>	
Test whistle	<input type="checkbox"/>	<input type="checkbox"/>	
PFD:			
Inspect for rips/tears/holes	<input type="checkbox"/>	<input type="checkbox"/>	
Inspect seams	<input type="checkbox"/>	<input type="checkbox"/>	
Inspect fabric straps	<input type="checkbox"/>	<input type="checkbox"/>	
Check buoyant material for:			
Mildew	<input type="checkbox"/>	<input type="checkbox"/>	
Shrinking	<input type="checkbox"/>	<input type="checkbox"/>	
Water-logging	<input type="checkbox"/>	<input type="checkbox"/>	
Strobe attached securely?	<input type="checkbox"/>	<input type="checkbox"/>	
Test strobe	<input type="checkbox"/>	<input type="checkbox"/>	
CO2 indicator green?	<input type="checkbox"/>	<input type="checkbox"/>	
Full cylinder of CO2	<input type="checkbox"/>	<input type="checkbox"/>	

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Figure 10-1: EPIRB maintenance page in Logbook.

Hydrostatic releases

Most life rafts and EPIRBs will be mounted with a hydrostatic release designed to automatically deploy the unit at several meters. Always check the expiration dates to assure that they are current.

Signals

Elements of effective signals



- Must attract attention
- Bigger
- Brighter
- Different
- Must convey message that you need help

There are two types of signals;

Passive - A signal that functions on its own without you.
Example: EPIRB, bright colors, wreckage

Active - A signal that only functions with your help.
Example: Flares, whistles, mirrors, radio, phone

General rules for signal use

- Stay alert! Maintain watches
- Have active signals always ready
- Protect signals from loss
- Signals come in three

Flares



Types

Meteors: Visibility is best at night and have a fast burn time.

Parachute Flares: Have a 60 second burn time, up to 1000 feet height, and visibility is best at night

Hand-held flares: Has a longer burn time and visibility is best at night

Smoke: Visibility is best in day time and works best in little wind

Dye marker: Visibility best in day time and works best in calm seas

General flare safety

Hand held: Be aware of hot, dripping slag that could burn you, your immersion suit and/or the life raft

Meteors: Hold 60-80 degrees above the horizon

All Flares: Treat like a firearm, use gloves if possible, turn face away prior to firing. **Do not** fire directly at aircraft, vessels, or people. Know how to use before hand – read instructions! Keep wind to your back



Other Factors

- Fire one flare first, preferable a Parachute or meteor, conserve the rest
- Primary use is when potential rescuers are in sight.

Other signals

Whistles: Three to five times louder than the human voice.

Strobe and lights: Keep batteries up to date and check bulb monthly.

Chemical light sticks: Check expiration dates.

Reflective tape: Check that it is not peeling off of PFDs and immersion suits.

Mirrors: Visible up to 50 miles.

Fires: With lots of smoke (use damp leaves, seaweed, etc.).

Fire Extinguishers

Most commercial fishing vessels are required to carry fire extinguishers. Only vessels less than 26' with outboard motors and construction that will not permit the entrapment of explosive or flammable gasses or vapors are not required to carry fire extinguishers. You should check where fire extinguishers are located and that they are in working order. You should always know where the closest extinguisher is. You may need to respond to a fire or provide backup to the crew. Some vessels may have built in systems located in the engine room. Get out of closed spaces and shut off any air supplies before these systems are triggered.

IV. Survival at Sea

The 7 steps to Survival

The USCG assembled the Seven Steps to Survival from personal experiences of those who survived emergency situations. Committing the seven steps to survival to memory should be one of the goals of every Observer

learning how to survive at sea. Every time the situation changes—boarding a raft, reaching land, etc., the seven steps begin again.



1. **Recognition** - You must quickly recognize the seriousness of the situation and that your life is in danger. Hesitation or denial may cost your life.
2. **Inventory** - Stop and assess the situation. Decide what you have that will help you survive and what are the hindrances. Inventory equipment, weather, your skills, injuries, and your mental condition. Doing so will help you to make good decisions that will help you survive.
3. **Shelter** - Your biggest enemy is the cold. Shelter can be clothing, an immersion suit, a raft, or an overturned vessel—anything that protects you against the loss of body heat. Water can take heat away from your body much quicker than air, so shelter also helps you keep as dry as possible. High heat loss areas, including the head and neck, need to be protected most. The added buoyancy of a PFD helps to keep your head and neck out of water, therefore conserving heat. In a shore survival situation, the seven steps to survival start over again and shelter is your first priority after you inventory the situation. It takes hours to construct adequate shelter on shore and you must do so as soon as possible.
4. **Signals** - Anything that attracts attention and conveys a message is a signal. Radios, EPIRBs, and flares are signals carried by vessels. Immersion suits have lights attached. You may have a signal mirror in your personal survival kit. If abandoning ship, anything that can be tossed



overboard may help an aircraft spot your position. ***Anything that makes you bigger, brighter, or different from your surroundings is a signal***, so an attempt to gather items, which float, from a sinking ship should be made. In a shore survival situation, three of anything (fires, buoys, immersions suits on the beach) is an internationally recognized distress signal.

5. **Water** - It is recommended that humans drink two liters of water per day to stay healthy. You can live without water for only a few days, and will suffer dehydration from the onset of any abandon ship emergency. Life rafts have limited rations of water, so it is advised to gather as much as possible before abandoning ship, if time permits. Have a strategy for gathering extra water in an emergency. ***Never drink seawater or urine.***
6. **Food** - A person can go without food much longer than without water. Never eat food without water—your body requires water to digest food. Life rafts are supplied with limited food rations. In a shore survival situation, many types of edibles can be found near shore. Almost any animals or green plants in the inter-tidal zone are edible, but avoid mussels and clams—they may cause paralytic shellfish poisoning.
7. **Play** - Studies have shown that mental attitude makes a positive difference in a survival situation. Play is anything that keeps you occupied and prevents your mind from dwelling on the difficulties you are facing. Play could be reading, telling jokes or stories, completing a

task, improving your shelter—anything that keeps your mind active and focused.

Hypothermia

Harsh conditions as well as the chance of going overboard make hypothermia a real threat on fishing vessels. Hypothermia by immersion in water can occur in temperatures less than 91° F, and many deaths at sea due to drowning are actually caused by hypothermia.

Hypothermia is a cooling of the core temperature of the body. This happens when the body's heat production can't keep up with the body's heat loss. The five main heat loss areas are; the head (50% of the body's heat can be lost through the head), neck, armpits, sides, and the groin. Three ways to prevent heat loss are by retaining body heat with proper clothing and insulation, regulate body heat by eating and drinking warm drinks before heat loss is a problem and avoiding overheating, and by decreasing heat loss with proper clothing and shelter.

Hypothermia can happen on land, a slower often harder to recognize form, or by immersion which is a rapid onset, dangerous condition which also requires rescue from the water. Both types of hypothermia happen in stages:

- 1. Shivering.**
- 2. Violent shivering, loss of coordination.**
- 3. Unconsciousness.**
- 4. Death.**

It is important to recognize hypothermia in order to treat it as soon as possible. Drop in temperature, feeling cold, depressed vital signs, slurred speech, staggering, reduced mental ability/impaired judgment and lack of response to stimuli are all signs of hypothermia. Victims with these signs should be considered hypothermic and treated accordingly.

Treating hypothermia patients is basically the same for all types, with a few differences depending if it is mild, severe and if a pulse and breathing are present.

For severe hypothermia

Treat Gently

Don't force joints, or rub skin.

Increase Shelter

Remove wet clothing.

Increase insulation.

Protect from elements.

Gently Rewarm Core

Skin to skin contact.

Padded/insulated heat packs.

*No exercise.

*No food or drinks.

*No showers.

Monitor and Transport to a Care Facility

If a victim is mildly hypothermic (only feels cold, with no other symptoms) some exercise, food and drinks in small quantities if the victim can swallow and perhaps a warm shower may be appropriate. Severe hypothermia without a pulse and no breathing treat as above and begin CPR. When in doubt of the level of hypothermia, assume the worse and treat appropriately.



Cold Water Near Drowning

Drowning victims who appear dead may be saved! Cold-water near drowning is a phenomena that has been observed in cold waters (under 70° F) where victims have been revived using CPR after being immersed in cold water for up to one hour. Victims appear to be dead but have been revived. In a cold water drowning event first rescue the victim from the water, then start CPR and prevent

further heat loss and transport to a care facility. Keep in mind that although a victim looks dead, s/he may be revived by this technique

The STAY Rules

If an emergency forces you into the water with or without your immersion suit and no raft, practice the STAY rules:

1. **STAY afloat.**

Wear a PFD, or immersion suit.

2. **STAY dry.**

Immersion suits are the best protection in the water.

Get out of the water as soon as possible.

3. **STAY still.**

Staying still decreases heat loss by 30% over swimming or treading water.



4. **STAY warm.**

Protect high heat loss areas; head, neck, armpits, sides and groin.

If prolonged water exposure is unavoidable, assume HELP or HUDDLE positions.

5. **STAY with the boat.**

Staying with an overturned vessel will give you shelter and make you a bigger signal.

6. **STAY together.**

Makes a bigger signal and promotes moral support.

7. **STAY sober.**

Drugs and alcohol have no place in an emergency situation.

Heat Escape Lessening Position (H.E.L.P.) and HUDDLE positions

When immersed in the water in an immersion suit or PFD it is important to assume positions that will help you stay still and conserve heat. The use of these tactics can double survival time over that of swimming or treading water. These positions cannot be assumed without floatation. These positions help conserve heat by protecting your main heat loss areas; head, neck, armpits, sides and groin. To assume the H.E.L.P. position float slightly on back and hold the inner sides of your arms tight against the sides of your chest to protect your armpits. Bend your knees and pull up your legs toward your groin as far as you can without tipping over. To assume the HUDDLE position form large or small groups and form tight huddles to share body heat. Individuals without floatation or who are really cold can be put in the middle where it is warmest.



The best way to stay warm and dry is to stay out of the water in the first place.

Psychology of Survival

Often the reason some people survive emergencies and others don't is simply the "will to live" or the "will to survive". Maintaining a positive attitude in an emergency situation and trying to regain a sense of control over your situation is very important to survive.

Some common themes that run through the stories of survivors:

Accept your situation, but don't give in to it.
 Act like a survivor, not like a victim.
 Don't give up.
 Be positive.

Have a plan.
Pray

Play. Keep a positive attitude, and find the will to live!

V. Emergencies on Board

Man Overboard

First thing to remember is to take steps to never fall overboard by avoiding unsafe deck behavior, and working on deck when it is not safe.

If you are the one overboard:



1. Attract attention, yell, whistle, etc.
2. Assume the H.E.L.P. position.
3. Keep clothes and boots on. They will increase insulation and will not pull you down.
4. Grab any floating objects that will make you more buoyant and more visible.
5. Stay as still as you can.

If you are aboard a vessel and someone goes overboard:

1. Mark position with anything that floats and mark waypoint on GPS if possible. (Many vessels have a M.O.B. button especially for these situations)
2. Sound Alarm.
3. Post lookout. Eyes and pointing hand **never** leave victim.
4. Maneuver vessel to return to victim.

5. Rescue swimmer dons immersion suit with rescue line attached. Prepare to launch rescue craft if needed.
6. Recover victim. Bring aboard (horizontally if it takes on more time) over the side or up the stern ramp of the vessel.
7. Treat victim. Look for signs of hypothermia and/or cold water near drowning as well as any other injuries.
8. Contact Coast Guard and vessels in area if victim is not found immediately, or medical advice/attention is needed.



Fire

It is wise to know where fire extinguishers and exits are located in every area of the vessel—especially those areas in which you spend time. Fire extinguishers have only short bursts of fire retardants, so back-up extinguishers should be located and brought to the fire as soon as the fire is discovered. To effectively use a fire extinguisher, fire in short bursts in a low, sweeping motion. Keep your body low to avoid smoke inhalation and heat. Do not attempt to fight any fire alone, (except a small fire e.g. a wastebasket fire).

1. Sound Alarm, notify wheelhouse and signal alarm.
2. De-energize electrical system to area.
3. Close doors to stop the spread of fire and smoke.
4. Fight fire.
 - Smother, cut off air supply.
 - Cool.

- Interrupt chain reaction.
- Jettison.
- 5. Account for personnel.
- 6. Establish boundary perimeter.
 - Visualize area as a box.
 - Know what is on all **six** sides of the box!
- 7. Prepare in case of abandon ship.
- 8. Ensure everyone knows how to use fire extinguishers.
 - Proper type for fire
 - Locations.
 - Ensure extinguishers can be found in the dark.

Flooding



When a vessel is taking on water, usually the crew has time to try and solve the problem. Malfunctioning pumps or leaks in through-hull fittings are not uncommon, and can usually be fixed with equipment on board. If the flooding condition worsens, the Coast Guard can drop pumps to a vessel via aircraft. Observers have limited roles in these types of vessel emergencies but should be prepared to assist if needed.

Procedures:

1. Sound alarm
2. Close all watertight hatches, doors and air vents

3. Plug holes.
4. Use pumps and buckets of water.
5. Check lines, through-hull fittings and hull for leakage.
6. Maintain stability of vessel
7. Prepare in case of abandon ship.

Remember: **PLUG! CLOSE! PUMP!**

Helicopter Evacuations

In an emergency situation at sea it may become necessary to be evacuated by helicopter from a vessel, life raft or the water. Be prepared to follow helicopter crew's instructions. If you think a helicopter evacuation is necessary:

1. First make contact with the US Coast guard on the radio or by signaling if you are in a life raft or in the water after an event. Provide the same critical information you would as in a MAYDAY, vessel name, description, nature of problem etc.
2. Clear the area.
 - Lower flopper poles, secure loose debris, etc.
3. Position the vessel
 - Keep going forward with the bow 35 to 45 degrees to right of wind line.
4. Prepare those to be evacuated.
 - Eye/ear protection, warm clothing, PFD, medical records.

- Position on deck just before arrival.
5. Hoisting from a vessel.
- Retrieve trail line
 - Guide litter/basket with trail line. Allow to touch deck before touching t to release static charge.
 - Never tie off trail line!
 - Load one person at a time in basket. Keep hands and feet inside
 - Use trail line to help guide.
6. Hoisting from life raft or water.
- If directed to, swim away from life-raft.
 - Use USCG hoisting strap, they will not use hoisting straps on immersion suits.

Sending a May Day

There are three types of emergency broadcasts:

SECURITE – lowest urgency, brings attention to weather, navigation hazards.

PAN PAN – calling station has an urgent message to transmit.

MAYDAY – highest urgency, immediate life/limb threatening danger.

A mayday call is for a life-threatening emergency. The emergency frequencies are Channel 16 on VHF radios and 2182.0 kHz or 4125.0 kHz on single side band radios (SSB).

VHF radios are for short range and SSB radios are for long-range communications (See Appendix R for more information on radios). Vessels are required to monitor the emergency frequencies at all times. Most radios have a red button that changes to the emergency frequency immediately. Near the radios, there should be a placard posted that describes MAYDAY calls. Be familiar with what constitutes a proper MAYDAY call:

1. MAYDAY MAYDAY MAYDAY (said three times)
2. Vessel name and call sign (said three times)
3. Location
4. Latitude and Longitude if possible, if not use geographic references.
5. Nature of emergency
6. How many persons on board
7. Vessel description-Length, color type, etc.
8. What radio frequency is being used
9. Listen for a response. If none, repeat the message until it is acknowledged or you are forced to abandon ship.

Unanswered MAYDAY

Sometimes you may hear a MAYDAY, but not hear a response from the Coast Guard. If this happens;

1. You must answer and log details
2. Advise vessel what assistance you can give

3. Contact Coast Guard to ensure that they have received the call

MAYDAY relay

1. Acquire information Name and call sign of vessel in distress
2. Location
3. Nature of problem
4. Number of persons onboard
5. Description of vessel
6. Name, address, and phone number of vessel owner

Transmit MAYDAY relay

1. MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY
2. Your vessels name and call sign
3. Name and call sign of vessel in distress
4. Location of vessel in distress
5. Nature of problem with vessel in distress
6. Degree of assistance needed (i.e. immediate)
7. Listen for acknowledgement
8. Transmit additional information



Abandon Ship

The worst possible emergency requires a person to give up their shelter—the vessel. Never abandon the ship unless it is certain that being on board the vessel is more dangerous than being in the water. Lives have been lost because ships have been abandoned too soon during fires or flooding. Knowing the nearest exits, mustering areas, life raft locations, immersion suit locations, EPIRB locations, and the emergency equipment available become critical factors in helping you survive an abandon ship emergency.

General Abandon Ship Procedures are as follows:

1. Sound General Alarm.
2. Send Mayday.
3. Don immersion suits/PFDs. Put on extra warm clothing first if possible.
4. Prepare to launch life raft. Attach sea painter to vessel.
5. Assemble signal devices to take into life raft. These include EPIRBs, flares, smoke signals, flashlights, handheld radios, etc.
6. Get first aid kit, water, food, and abandon ship (survival) kit.
7. Muster at embarkation station.
8. When sinking is imminent or remaining on board is inappropriate:
9. Launch and board life raft.
10. Keep sea painter attached to vessel. Be prepared to cut sea painter immediately if there is risk to life raft or vessel sinks

11. Activate EPIRB and commence 7 Steps to Survival.

VI. Vessel Orientation and Safety Checklist

WCGOP Observers are required to check every vessel they board for safety equipment required by U.S. Coast Guard regulations and general safety concerns. Prior to leaving on the first trip on any vessel, all Observers must do the following two things:

- Complete a Vessel Safety Orientation Checklist (See Figure 10-6).
- Mail or fax a copy of the completed Vessel Safety Orientation Checklist to the assigned coordinator.

Prior to your first trip ask for a vessel orientation. If the captain refuses to give you one, document it in the log book and in the comment section of the Vessel Safety Orientation Checklist. Check for a Station Bill and any emergency instruction. If a Documented vessel doesn't have a Station Bill, offer to give them one and help them fill it out.



During your orientation, familiarize yourself with all the safety equipment, possible sampling areas, gear storage areas, how all doors or hatches operate, and egress routes. Always think about how to get out of enclosed areas, especially the bunk room, upside down, in the dark and underwater.

Pay special attention to listing, bilge pumps running at the dock, excess water in closed spaces, and weight stored high above deck. These issues could severely impact the stability of the vessel at sea. Discuss any concerns with the captain, your lead and your coordinator.

During the orientation, pay close attention to over all vessel condition. Look for rust holes though the hull or deck, broken windows, missing hatches, broken bin boards etc...

Also note cluttered work areas, poorly stowed gear, spilled lubricants, fuel, and hydraulic fluid. Record all concerns about overall vessel condition on your Vessel Safety and Orientation Checklist. Discuss these concerns with your lead observer and your coordinator prior to making a trip.

After the initial trip, periodically verify that the vessel safety gear remains on the vessel and is in working order. If at any point the vessel does not meet U.S. Coast Guard safety regulations, the vessel is considered unsafe to carry an Observer and you may not board. If this should occur, contact a coordinator immediately.

Vessel Safety Orientation Checklist

The Vessel Safety Orientation Checklist is designed to facilitate the initial safety check. Always verify all the items on the checklist before embarking on a vessel for the first time. Write thorough comments on any items that are unavailable, unsafe or look inadequate. Always advise a coordinator immediately of any unsafe situation and NEVER leave on a vessel that you do not feel is safe.

Checklist of Vessel Safety Equipment From Logbook

VESSEL SAFETY

Prior to boarding a vessel for the first time, you are required to check the vessel for safety equipment required by U.S. Coast Guard regulations. Check the major safety items identified below. Please be aware that certain items on the safety checklist may not be required for vessels of certain sizes or operating in certain geographic areas. For further information, refer to the US Coast Guard publication "Federal Requirements for Commercial Fishing Industry Vessels" or contact your coordinator.

After the initial trip, periodically verify that the vessel safety gear remains on the vessel and is in working order.

Checklist of Vessel Safety Equipment

1. Check for safety inspection documentation. Look for a current USCG Commercial Fishing Vessel Safety Examination decal. These decals are valid for two years from the month issued, indicated with the hole punch.

Sample of USCG commercial fishing vessel safety decal (no holes punched).

2. Find the station billet (commonly called the station "bill"), a posted placard describing the role of all hands on board (including the Observer) in an emergency.
3. Locate life rafts /Buoyant apparatus Is there enough life raft capacity for everyone on board including you? If there are more than two, are you assigned to a particular one? Check and record the service dates displayed on the canister and hydrostatic release. Check that the life raft/buoyant apparatus meets the Coast Guard requirements for the areas fished.

Figure 10-2: Vessel safety checklist in Logbook.

Schematic diagram of a hydrostatic release:

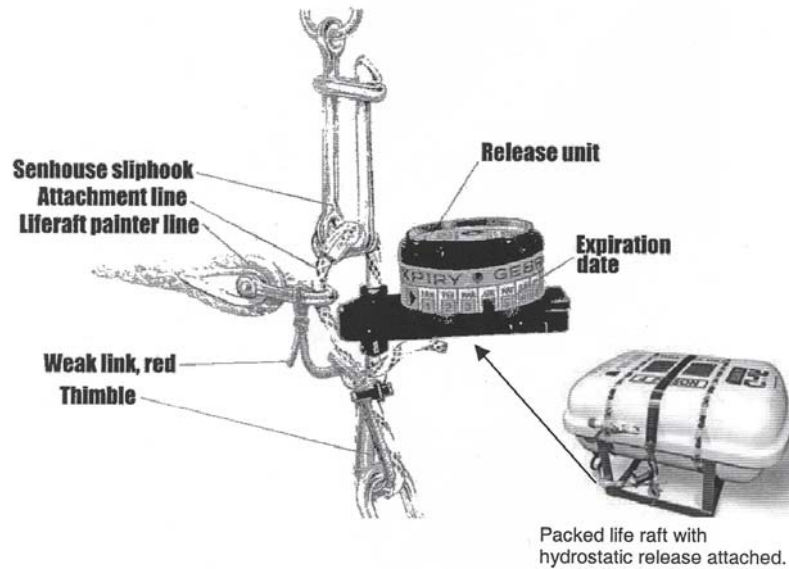


Illustration of two hydrostatic releases styles found on life rafts:

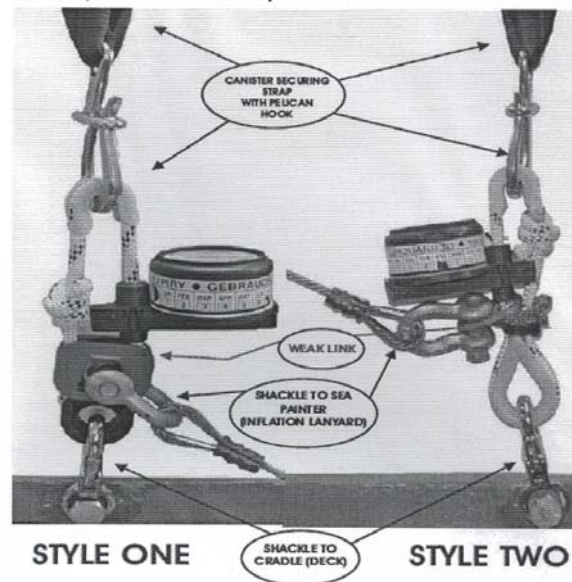
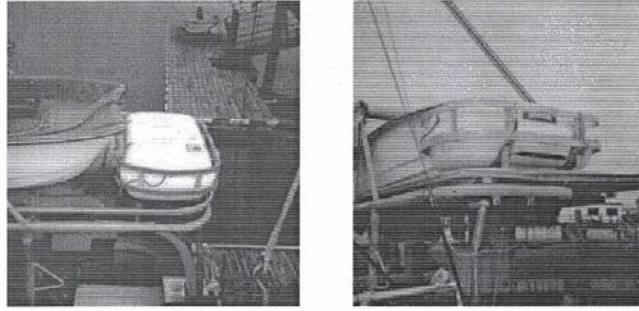
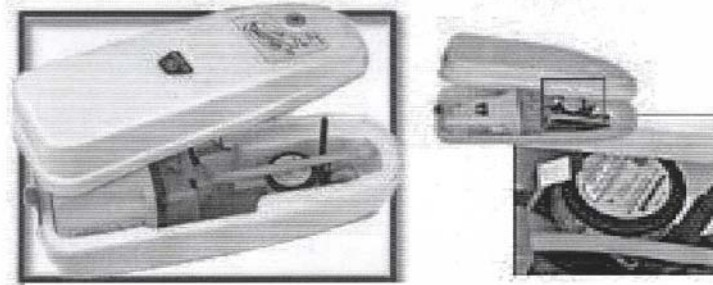


Figure 10-3: Vessel safety checklist in Logbook.



Life raft in the "alternate float-free arrangement"

4. Life raft equipment – Is the life raft equipped with a SOLAS pack? Ask the captain.
5. Immersion suits/life preservers - where are the survival suits and PFDs located? Are there enough for everyone on board? Are they accessible at all times? You will be issued an immersion suit and PFD as part of your NMFS sampling gear. Keep yours where you can get to it in a hurry.
6. Life rings/Type IV throwable device - Where are they? Are they accessible?
7. Flares – Where are the flares located? Check and record the expiration date. Does this vessel also have approved smoke signals?
8. EPIRBs – Where is the Emergency Position Indicating Radio Beacon (EPIRB)? Is there more than one? Read the instructions. Check and record battery, hydrostatic release, and NOAA registration expiration dates. Test the EPIRB signal with vessel aid (or check vessel's log).



Images of a commonly seen vessel mounted EPIRB arrangement (hydrostatic release inside of case).

9. Fire extinguishers – Where are they? Are they accessible? Are they up to date, charged, and ready to use?
10. First aid materials – Where are first aid materials kept? Is there a reference book on board?

Figure 10-4: Vessel safety checklist in Logbook.

11. Radios – Where are the radios? Are emergency call instructions posted nearby? Do you know how to operate the radio for an emergency call?
12. Are there emergency instructions for, and did the skipper ensure that you were given, a safety orientation explaining the following? If not, ask the skipper to do so.
 - Survival craft embarkation stations
 - Survival craft assignments
 - Fire/emergency/abandon ship signals
 - Immersion (survival suit locations and donning instructions)
 - Procedures for making a distress call
 - Essential actions required of each person in an emergency
 - Procedures for recovering a person overboard
 - Procedures for fighting a fire
13. Injury placard – Is there an injury placard? Where is it?
14. Compass – Does the vessel have a compass?
15. Anchor – Does the vessel have an anchor?
16. General alarm – Does the vessel have a general alarm?
17. High water alarm – Does the vessel have a high water alarm?
18. Bilge pump – Does the vessel have a bilge pump?
19. Adequate means of escape – Does the vessel have adequate means of escape from your quarters?
20. Watertight closures present?
21. Nautical charts for applicable areas – Does the vessel have the applicable charts?
22. Wheelwatch arranged – Have you discussed and communicated the need for a wheelwatch with vessel? Has the vessel operator agreed to keep a lookout?
23. Additional comments/ concerns – Add additional comments about items not mentioned above including, but not limited to the quality of the bin boards, excess water in the bilge or lazarette, the amount of gear/ clutter on deck, lack of anchor chain, etc.

Figure 10-5: Vessel Safety Orientation Checklist in Logbook

VESSEL SAFETY ORIENTATION CHECKLIST

Verify all items on this checklist before embarking on a vessel. **Record the Vessel Safety Examination Decal date in the Comments/Dates section.** Record the life raft size, ex. 4 or 6 person. Write thorough comments on any items that are unavailable, unsafe or you feel are not adequate. Advise your NMFS coordinator on any unsafe situations. **DO NOT LEAVE ON A VESSEL THAT YOU DO NOT FEEL IS SAFE.** Items listed below may not necessarily deem a vessel safe. Mail or fax this form to your coordinator prior to leaving on the first trip.

Vessel Name: _____

Observer Name: _____

Date: _____

	Available	Unavailable	Comments/Date
Commercial Fishing Vessel Safety Decal	()	()	Date: _____
Station bill/placard	()	()	_____
Life raft/Buoyant apparatus	()	()	Date: _____
Liferaft equipment	()	()	_____
Immersion Suits/PFDs	()	()	_____
Life rings/Type IV throwable cushion	()	()	_____
Flares/Distress signals	()	()	Date: _____
EBIRBs	()	()	Dates: _____
Fire extinguishers	()	()	_____
First aid materials	()	()	_____
Radios/Communication equipment	()	()	_____
Emergency instructions	()	()	_____
Injury placard	()	()	_____
Compass	()	()	_____
Anchor	()	()	_____
General alarm	()	()	_____
High water alarm	()	()	_____
Bilge pump	()	()	_____
Adequate means of escape	()	()	_____
Watertight closures present	()	()	_____
Nautical charts for applicable areas	()	()	_____
Wheelwatch arranged	()	()	_____

Additional Comments/concerns:

Observer _____ Date _____

Please be aware that certain items on the list above may not be required for some vessels of certain sizes or operating in certain geographic areas. For specific information, refer to the US Coast Guard publication "Federal Requirements for Commercial Fishing Industry Vessels" or contact your coordinator.

Figure 10-6: Vessel Safety Orientation Checklist in Logbook



VII. Summary

You can learn a lot about sea safety and survival from vessel personnel, staff, and experienced observers who probably have many years of sea experience among them. However, the ultimate responsibility is upon you to survive. It is easy to think “this will never happen to me” and “the skipper will know what to do,” but those thoughts may cost you your life. Take the time to learn as much as you can, and consider what your actions will be in emergency situations. Visualize yourself and your actions in emergency scenarios in the factory, on deck, in your bunk, or anywhere you spend time. Having thought about an emergency will make your actions more automatic, and the time saved may save your life. Practice using your safety gear and inspect it regularly. Your life is worth far more than any data you could collect in the fishery.

VIII. Safety Regulations

Observer Health and Safety Regulations

The Commercial Fishing Vessel Safety Act of 1988 mandates certain safety equipment, instructions, and drills aboard vessels that operate beyond the boundary line (a federally designated line between points of land) or carry more than 16 individuals. Not all vessels that need Observers fall under these regulations. In mid 1998, NOAA Fisheries adopted regulations to ensure the adequacy and safety of fishing vessels carrying Observers. Under 50 CFR Part 600, owners and operators of fishing vessels that carry Observers are required to comply with U. S. Coast Guard safety regulations (see Appendix O). A vessel is considered inadequate or unsafe if it does not comply with the regulations regarding Observer accommodations or if it has not passed a USCG safety examination or inspection. If Observers feel uncomfortable boarding a vessel because it is unsafe or inadequate for you to carry out your required duties, contact a NOAA Fisheries

coordinator immediately. A vessel that would normally carry an Observer, but is deemed unsafe, is prohibited from fishing without an Observer or a waiver.

When boarding a vessel, regulations mandate that Observers receive a safety orientation. This may be as simple as a crew member showing the Observer around, but may include watching videos, donning immersion suits, or conducting drills.

Federal Requirements for Commercial Fishing Industry Vessels greater than 60 ft.

General Requirements

Documentation & Official Number 46 CFR 67-69

- Vessel must be measured and documented, documentation must be on board.
- Hailing/home port, and official number must be displayed in 4 inch letters on both bows.
- Official number must be 3-inch letters and attached to integral interior structure member.

Operator License 46 U.S.C. 8304

- The master, mate, and engineers on the vessel of 200 gross tons or more must have appropriate USCG license and operate within the limitations of the licenses.

Commercial Fishing Vessel

Safety Inspection Requirements 50 CFR 679.50, 33 CFR Chapter I, 46 CFR Chapter I, 46 CFR 28.710, 46 CFR U.S.C. 3311

- Must have a valid Commercial Fishing Vessel Safety Decal issued within the past 2 years that certifies compliance with regulations found in 33 CFR Chapter I and 46 CFR Chapter I.
- Must have a valid certificate of compliance issued pursuant to 46 CFR 28.710.
- Must have a valid certificate of inspection pursuant to 46 U.S.C.3311.

Navigational Requirements

Compass 46 CFR 28.230

- Each vessel must be equipped with an operable magnetic steering compass with a compass deviation table at the operating station.

Electronic Position Fixing Devices 46 CFR 28.260

- Vessels 79 feet or more in length must be equipped with an electronic positioning fixing device such as SAT NAV, GPS, LORAN, OMEGA, or RDF that is capable of providing accurate fixes for the area of operation.

Navigation and Anchor

Lights

- Must be used from sunset to sunrise and when there is limited visibility.
- Navigation Information 46 CFR 28.225.

- Current corrected charts of the appropriate areas and scale for safe navigation.
- Current corrected copy (or applicable extract) of the U.S. Coast Pilot, USCG Light List, National Ocean Service Tide Tables and National Ocean Service Current Tables.

Anchor and Radar Reflectors 46 CFR 28.235

- Vessels operating with more than 16 individuals on board or vessels operating outside boundary water.
- Each vessel must be equipped with appropriate anchor(s) and chain(s), cable, or rope.
- Nonmetallic hull vessels must be equipped with a radar reflector unless it is a vessel rigged with gear that can provide a radar signature at six miles.

Radar and Depth Sounding Devices 46 CFR 28.400

- Vessels with 16 or more individuals, or vessels operating outside boundary water, that have had their keel laid or major conversion on or after September 15, 1991:
- Each vessel must be fitted with a general marine radar system for surface navigation with a radar screen mounted at the operating station.
- Each vessel must be fitted with a suitable echo depth-sounding device.

Communications Requirements

Communications Equipment 46 CFR 28.245, 46 CFR 28.375, 33 CFR 26.03, 47 CFR 80

- Each vessel must be equipped with VHF radiotelephone communication equipment operating within 156-162 MHz band.
- A radio transceiver installed on board before Sept. 15, 1991, operating on 4-20 MHz band may continue to be used to meet the requirements for vessels operating more than 100 miles from the coastline in Alaskan waters.
- All communications equipment must be operable from the vessel's operating station and must comply with FCC requirements including a Ship Radio Station License.
- An emergency source of power, that is independent of the main power supply, outside of the main machinery space, and capable of providing power to communications equipment for at least 3 continuous hours.

Emergency Requirements

Personal Flotation Devices (PFD) 46 CFR 28.105, 46 CFR 28.110, 46 CFR 28.135, 46 CFR 28.140

- CG approved immersion suit with 31 square inches of retro reflective tape on the front and back of each side.
- Must have CG approved PFD light.
- Must be marked with the name of the vessel, owner of device, or the individual to whom it is assigned.

Ring Buoy 46 CFR 28.115 & 46 CFR 28.135

- Vessels less than 65 feet must have 1 orange Ring Life Buoy at least 24 inch in size, with 60 feet of line, and marked with name of vessel.
- Vessels greater than 65 feet must have 3 orange Ring Life Buoys at least 24 inch size with 90 feet of line. Marked with the name of the vessel.

Safety Protection Device (SPD)

- Vessels less than 65 feet must have a whistle that is audible for 1/ 2 minute.
- Vessels over than 65 feet must have a whistle that is audible for 1 minute.

Survival Craft 46 CFR Tables 28.120 (a)

- Between shore & 12 miles off coastline - inflatable buoyant apparatus.
- Between 12-20 miles off coastline - inflatable life raft.
- Between 20-50 miles off coastline - inflatable life raft with SOLAS B pack.
- Beyond 50 miles off coastline - inflatable life raft with SOLAS A pack.

Stowage of Survival Craft 46 CFR 28.125

- Each inflatable life raft that is required to be equipped with a SOLAS A or B equipment pack automatically inflates if the vessel sinks.
- Each inflatable life raft must be kept readily accessible for launching or be stowed so they will float free if the vessel sinks.

- Each hydrostatic release unit in a float free arrangement must have a CG approved number starting with 160.062.

Launching of Survival Craft 46 CFR 28.310

Vessels with 16 or more individuals, or vessels operating outside boundary water, that have had their keel laid or major conversion on or after September 15, 1991:

- A gate or other opening must be provided in deck rails, lifelines, or bulwarks adjacent to the stowage location of each survival craft which weighs more than 110 pounds, to allow the survival craft to be manually launched.

Embark Stations 46 CFR 28.395

Vessels with 16 or more individuals, or vessels operating outside boundary water, that have had their keel laid or major conversion on or after September 15, 1991:

- Each vessel must have at least one designated survival craft embark station (more if necessary) that is readily accessible from each accommodation space and workspace.
- Each embark station must be arranged to allow the safe boarding of survival craft.

Means of Escape 46 CFR 28.390

Vessels with 16 or more individuals, or vessels operating outside boundary water, that have had their keel laid or major conversion on or after September 15, 1991:

- Each space used by an individual on a regular basis or which is generally accessible to an individual must have at least two widely separated means of escape. At least one of the means of escape must be independent of

watertight doors. Means of escape include normal exits and emergency exits, passageways, stairways, ladders, deck scuttles and windows.

Visual Distress Signals 46 CFR 28.145

- Vessels operating more than 3 miles from shoreline are required to carry 3 parachute flares, 6 hand flares, and 3 smoke signals.
- Vessels operating within 3 miles of the coastline are required to carry night and day visual distress signals. Night signals can be one electric distress light or 3 CG approved flares. Day signals can be either one distress flag or 3 CG approved smoke signals.

EPIRB 46 CFR 28.150 & 46 CFR 25.26

- Vessels operating beyond coastal waters are required to have an FCC type accepted category 1, float-free, automatically activated, 406 MHz EPIRB.
- Each EPIRB must be marked with vessel name and type II retro reflective material (46 CFR 28.135).

General Alarm 46 CFR 28.240

- A general alarm system suitable for notifying individuals on board is required with a contact marker at the operating station. The general alarm must be capable of notifying individuals in any accommodation or workspace. Under certain circumstances (defined at CFR 28.240) a public address system that is audible in all workspaces meets may meet regulatory requirements.

- In noisy workspaces a flashing red light is required.
- The general alarm system must be tested prior to getting underway and at least once each week while underway.

Emergency Instructions 46 CFR 28.265

- As applicable, emergency instructions are required for: survival craft embarkation stations and personnel assignments; fire, emergency, and abandon ship signals; immersion suit location and donning information; procedures for making distress calls; list of each individual's emergency and specially established procedures. Specific details and posting requirements are found at 46 CFR 28.265

Instruction, Drills, and Safety Orientation 46 CFR 28.270, 46 CFR 28.275

- At least once a month the master must ensure that drills are conducted and instructions are given to each person on board.
- No individual may conduct the drills or provide the instructions required by this section unless that individual has been trained in the proper procedures for conducting the activity. An individual licensed for operation of inspected vessels of 100 gross tons or more needs to comply with the requirements in 46 CFR 28.275.
- Drills and instructions are to include: abandoning the vessel, fire fighting, man overboard recovery, stabilizing vessel after unintentional flooding, launching survival craft,

and recovery of life and rescue boats, donning immersion suits, PFD's, fireman's outfits and breathing apparatus, radio and visual distress calls and signals, activating the general alarm and reporting of inoperative alarms and fire detection systems.

- Viewing of videotapes followed by discussion led by a person familiar with the subjects can be used for instruction requirements but not as a substitution for drills.
- The master must ensure that all individuals who have not received the above instruction or participated in the drills receive a safety orientation before the vessel may be operated. This safety orientation must explain the emergency instructions required by 46 CFR 28.265 and cover the specially established procedures listed above.

High Water Alarms 46 CFR 28.250

- Alarms are to be both visual and audible and installed at the operating station.
- Alarms are to indicate high water in each of the following normally unmanned areas: a space with a through-hull fitting below the deepest load water line, a machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from sea water piping within the space, a space with a non-watertight closure such as a space with a non-water tight hatch on the main deck.

Bilge Systems 46 CFR 28.255

- All vessels must be equipped with a bilge pump capable of draining any watertight compartment,

other than tanks and small buoyancy compartments, under all service conditions.

- If portable bilge is used to meet this requirement, a suitable suction hose and discharge hose must be provided that will reach the bilges of all watertight compartments it must serve and ensure overboard discharge. The portable pump must be capable of dewatering each space at a rate of at least 2 inches of water depth per minute.

Casualties and Injuries 46 CFR 28.080, 46 CFR 28.090

If any of the following incidence occur, the master or other vessel representative must as soon as possible, contact the nearest USCG Marine Safety Office and submit written report CG-2692 within five days:

- Groundings
- Loss of main propulsion or primary steering
- Loss of life
- Injury which requires professional medical treatment beyond first aid and render the victim unfit to perform vessel duties.
- Any damage over \$25,000, any occurrence affecting the sea-worthiness of the vessel such as; fire, flooding, or the failure or damage to fixed fire extinguishing systems, lifesaving equipment.
- Auxiliary power generating equipment or bilge pumping systems

Injury Placard 46 CFR 28.165

- A placard at least 5"x 7" stating the requirements of reporting injuries to vessel operator or agent as

defined by US law, 46 U.S.C. 10603 must be posted in prominent place.

First aid Equipment and Training, 46 CFR 28.210

- Each vessel must have on board a first aid manual and medicine chest of a suitable size in a readily accessible location.
- Vessel with more than 2 individuals must have at least 1 individual approved in first aid and at least 1 individual approved in CPR or 1 individual approved in both.
- Vessels with more than 16 individuals on board must have at least 2 individuals approved in first aid and at least 2 individuals approved in CPR. Individuals approved in both may be counted against both requirements.
- Vessels with more than 49 individuals on board must have at least 4 individuals approved in first aid and at least 4 individuals approved in CPR. Individuals approved in both may be counted against both requirements.

Fire Control Requirements Fire extinguishers 46 CFR 28.155 & 46 CFR 28.160 & 46 CFR 25.30

- Vessels over 65' are required to have approved USCG approved fire extinguishers in each of the following locations: Pilot house, service spaces, galleys, paint lockers, accessible baggage and storage rooms, workshops and similar spaces, engine room, auxiliary engine room, auxiliary spaces, and generator spaces. **NOTE:** Specifics on the type of extinguishers, number per location, and legal description of spaces where extinguishers are required can be found at

46 CFR 28.155 & 46 CFR 28.160 & 46 CFR 25.30.

Fire Pumps, Fire Mains, Fire Hydrants, and Fire Hoses. 46 CFR 28.316

Vessels with 16 or more individuals or that are outside of boundary borders that have had their keel laid or major conversion on or after September 15, 1991:

- Vessels >36' must be equipped with a self-priming, power driven fire pump connected to a fixed piping system.
- Specific requirements regarding locations and specifications for fire mains, fire hydrants, and fire hoses can be found at 46 CFR 28.316.

Fireman's Outfits and Self-contained Breathing Apparatus CFR 28.205

- Vessels equipped with refrigeration units using ammonia must be equipped with at least 2 self-contained breathing apparatus with spare air bottles for each.
- If the vessel has more than 49 individuals on board, at least 2 firemen's outfits, stowed in widely separated locations, are required. A fireman's outfit consists of one pressure demand open circuit MSHA/NIOSH approved self-contained breathing apparatus with a 30 minute air supply and a full face piece, one lifeline with a belt or suitable harness, one flashlight, a rigid helmet, boots, gloves, protective clothing, one fire axe, and a spare air bottle.

Miscellaneous Requirements

Guards for Exposed Hazards 46 CFR 28.215

- Suitable hand covers, guards, or railings must be installed in way of machinery that can cause injury to personnel, such as gearing, chain or belt drives, and rotating shafting. This is not meant to restrict necessary access to the fishing equipment such as winches, drums, or goodies.
- Internal combustion engine exhaust pipes within reach of personnel must be insulated or otherwise guarded to prevent burns.

Watertight and Weather tight Integrity 46 CFR 28.560

- Each opening in a deck or a bulkhead that is exposed to weather must be fitted with a weather tight or watertight closure devise.

Pollution Prevention 33 CFR 151, 33 CFR 155

- Vessels are required to post oil pollution and garbage placards, and to have a written solid waste management plan that describes procedures for collecting, processing, storing, and discharging garbage, and designated person in charge of carrying out the plan. Restrictions on dumping can be found at 33 CFR 151, 33 CFR 155

Sexual Abuse Act of 1986 46 CFR U.S.C. 10104

- It is the responsibility of the master to report to the USCG any complaints of sexual offenses including aggravated sexual abuse, sexual abuse, sexual abuse of a minor or ward, and sexual contact per 46 CFR U.S.C. 10104